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RESEARCH ON AND CONTROL OF ANIMAL DISEASES AT RIEMSNeues Deutschland  
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Infectious diseases caused by viruses are among the most dangerous types of zoonoses. They cause great losses in the production of food products of animal origin. In addition they effect significant decreases in the work capacity of agricultural animals. Many of them likewise present a health hazard to humans.

The task of the Riems Institutes is to conduct research on and combat these virus-animal diseases. Emphasis is given to resolving the problems which arise in practice. Basic research, nevertheless, is not neglected.

Better Prophylaxis, and Improvement of Inoculation Materials

The course of a disease is subjected to constant variation and is extremely dependent upon the immunological state of the animal. A striking example of this is the severe outbreak of foot-and-mouth disease on our continent, the occurrence of which approximately corresponds with the renewal of the general cattle population.

Thanks to the legally compulsory vaccination of all calves over 5 months old in the GDR, the last epizootic resulted in minor losses. In Western Europe and Western Germany, in contrast, severe direct and indirect losses were encountered. This fact stresses the importance of prophylaxis and is a proof of the good protective effect of the vaccines developed on Riems. On the basis of experience gained in the last epidemic, the Riems scientists are seeking to improve the prophylactic action of these vaccines. The danger of underestimating the danger of foot-and-mouth disease at times when there are no cases can not be sufficiently warned against.

Intensive work is also being done on the improvement of inoculation materials. Thus, the method of concentrating the foot-and-mouth vaccine recently developed by Professor Pyl on the basis of pure basic research makes possible a simplified and therefore more certain inoculation procedure resulting in less strain on the organisms of the vaccinated animals. A further important goal of the research on foot-and-mouth disease is to produce a so-called live vaccine. To do this, the causative agents of the disease must be passed through experimental animals which are not naturally susceptible to foot-and-mouth disease in such a way that the virus does not lose its immunizing, i.e., protective, properties. Using primarily white mice, careful research is also yielding good results in this field.

Hog Cholera

Morbidity among swine at present is marked by two heavy loss-producing diseases: Hog Cholera and enzootic bronchopneumonia. Because of their importance, both are prime research targets. After an effective crystal-violet vaccine modeled after the American one was produced at Riems and became available hog cholera began to lose its great terror in the GDR. The mass experiment conducted in 1954 under the guidance of Riems scientists showed impressively that hog cholera could be wiped out if the vaccine were administered in the form of an area inoculation and the pertinent hygienic and epidemical-legal regulations were strictly observed.

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The proposed expeditious elimination of hog cholera among our swine herds and future prophylaxis require an exceedingly large quantity of vaccine. The capacity of the present more or less improvised production facilities will not suffice for this. Until the completion of the new plant with double capacity which, according to a decree of the Council of Ministers, was to be effected between 10 March 1955 and 31 December 1955, presently existing available quantities of vaccine must be used at places where there are severe outbreaks and to maintain immunity in already vaccinated animals.

It is to be hoped that the construction project on the Island of Riems will receive considerably better support so that it can be completed within the proposed time limits. Under present conditions there is no prospect of a fundamental improvement in the fight against hog cholera. The solution of the housing problem confronting the scientists, laboratory technicians, and laboratory workers for the new laboratories should also be given more attention. Up to now, despite all requests and complaints, not one more housing unit than was included in the old housing construction program for the Riems establishment has been planned or built.

#### More Attention Devoted to Enzootic Bronchopneumonia of Swine

The second most important virus disease of swine is enzootic bronchopneumonia, which, due to its usually furtive course, is seldom given much attention. Nevertheless, it inflicts great economic losses because of the retardation in growth, the so-called "kuemmern" (depression), and the increased susceptibility to other diseases which it causes. This disease is especially significant in large breeding herds. It was determined at the Riems Institute that transmission occurs through droplet infection as in colds and human influenza.

As long as 20 years ago, works from the Riems establishment were published concerning the practical control of enzootic bronchopneumonia. Even at that time proposals were made for the healthy raising of shoats and the building of so-called Riems swine sheds was recommended. It was shown in establishments where it was tried that the results justified the increased work involved, since the losses in diseased herds soon decreased to the normal unavoidable minimum.

Besides foot-and-mouth disease, hog cholera, and enzootic bronchopneumonia, the Friedrich Loeffler Institute does research on infectious swine paralysis, equine infectious anemia, Borna disease of horses and sheep, fowl plague, rabies, distemper of dogs and fur-bearing animals, myxomatosis of rabbits, and a number of virus diseases of laboratory animals.

#### Modern Research Methods

It is impossible, within the scope of a newspaper article, to describe the details of these projects. The goal in every case is to arrive at the best methods of prophylaxis and therapy for these diseases on the basis of a combination of experience gained through basic and applied research. After experimental tests, the developed preventative and control methods are proposed for adoption in veterinary practice.

The latest biological, chemical, and physical methods are used in the research work conducted at the Riems Institute. For example, in order to study their mutations and the biological characteristics, individual virus strains are cultured not only in laboratory animals but also in fertilized chicken eggs and so-called tissue cultures. A practical result of the culturing of a virus in a fertilized chicken egg was the production of a good immunizing vaccine against fowl plague. Its introduction has brought

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about a significant curtailment of this economically harmful disease. The development of a vaccine against distemper in dogs and fur-bearing animals, the importance of which dare not be underestimated when one considers the large number of police, guard, and seeing-eye dogs and the economic value of fur-bearing animals, is also the result of the application of modern research methods.

#### Necessary Hypotheses

Experimental virus research requires a large financial outlay. This is true both for the always costly animal experiments and especially for the chemical and physical methods, the use of which is indispensable in basic virus research. Basic research is necessary since it produces the hypotheses upon which tomorrow's applied research will be based. The above-mentioned development of a concentrated foot-and-mouth disease vaccine is a good example of this. This achievement itself and the further rapid development of virus research depend upon the possibility of being able to work with the most modern implements and apparatus.

Virus research must be carried out with the aid of the latest technological developments if it is not to fall behind that being conducted in other countries. The government of the GDR supports the research work of the Riems establishment in an exemplary manner. Foreign and domestic visitors to the institute leave with this impression. The scientists working at Riems are convinced therefore that the offices which are concerned with imports will do everything that is necessary to provide the urgently needed supplements to the equipment of the institute as soon as possible. The resultant intensification and modernization of research work would naturally effect a further improvement in results and thereby benefit the struggle against animal diseases.

#### Cooperation of Science and Practice Assures Success

A successful and purposeful struggle against disease depends upon all persons connected with the maintenance and breeding of agriculturally useful animals being aware of their responsibilities. It is necessary that the importance of the hygienic and epidemical-legal measures dealing with animal breeding and animal raising be continually brought to mind. The scientists of the Riems establishment are therefore striving to effect a preventative animal health protection program through generally comprehensible publications and explanatory lectures. The resolution of the Council of Ministers of 10 March 1955 concerning the increase of animal production affords a good basis for this. Close cooperation between science and practice will assure final success in both the prophylaxis and control of animal diseases.

#### Illustrations

[Comment: The source includes three photographs. One, made indoors on Riems, shows two men preparing to dissect a dead animal. The second photograph, also made indoors, shows three men in the process of producing serum. The caption under this picture explains that blood from a cow which had been hyperimmunized against foot-and-mouth disease was centrifuged in a separator designed to separate serum. The blood is shown being poured into 20-liter flasks.

The third photograph is of Prof Dr Heinz Roehrer, National Prize winner, member of the German Academy of Sciences and of the German Academy of Agricultural Sciences in Berlin, and head of the Research Establishment for Animal Disease on Riems.]

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